

UNCLASSIFIED

Exhibit R-2, PB 2010 Office of Secretary Of Defense RDT&E Budget Item Justification	DATE: May 2009
--	-----------------------

APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE					
0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD)					PE 0603750D8Z Advanced Concept Technology Demonstration (ACTD)					
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	1.552	1.194	0.000						Continuing	Continuing
P523: ACTD	1.552	1.194	0.000						Continuing	Continuing

A. Mission Description and Budget Item Justification

The Department of Defense (DoD) initiated the Advanced Concept Technology Demonstration (ACTD) program with the purpose of demonstrating new, mature technologies in an operational environment and the goal of getting new technology into the hands of the warfighter as quickly as possible. Early successes included the Predator and Global Hawk unmanned aerial vehicles (UAVs). As of year end FY06, DoD has started 150 ACTDs, a total of 70 ACTDs were in process, and 22 had been returned to the technology base or terminated. However, no ACTD's have been started since FY 2006 with full transition to the JCTD program in FY 2007. By FY 2010 it is anticipated only three remaining ACTD's will not have completed the Military Utility Assessment (MUA). All funding in the ACTD program officially transferred to the JCTD program element (PE) in FY 2008, however, in 2008 and 2009 one congressional add was placed in the ACTD PE in each year.

The ACTD program demonstrated tremendous success in meeting urgent warfighter needs with 65 ACTDs contributing products that are/were employed in Operation Iraqi Freedom (OIF) and/or Operation Enduring Freedom (OEF). A non-exhaustive list of ACTDs deploying products to either OIF or OEF includes: Language and Speech Exploitation Resources (LASER), Expendable Unmanned Aerial Vehicle (XUAV), and the Joint Explosive Ordnance Disposal (JEOD) projects.

In FY 2006, the Deputy Under Secretary of Defense for Advanced Systems and Concepts (DUSD(AS&C)) initiated a new business process, building on the success of the ACTD program, to support the Department's transformational reform of addressing future threats from a capabilities focus versus the classical threat based viewpoint. The revised ACTD approach is called the Joint Capability Technology Demonstration (JCTD) program, and is based on proven, positive aspects of the ACTD program with new modifications. The JCTD model specifically addresses congressional concerns and recommendations made by the General Accountability Office (GAO) regarding rapid development and transitioning of Combatant Commander (CoCom) relevant capabilities to the joint warfighter in a more cost effective, timely and efficient model. Aligning closely with the thrust of with the Joint Staff's Joint Integration and Development System (JCIDS), JCTDs take a more balanced project candidate identification approach, shifting the overall program's focus to identifying specific warfighter capabilities needs up front (requirements pull), and then finding technology or concepts to address these needs, while maintaining the historical ACTD approach, where new technology is introduced to the warfighter to solve existing operational shortfalls (technology push).

FY 2008 Accomplishments: DUSD (AS&C) shifted all funding to the JCTD program and maintains oversight of the JCTD program. No projects are currently funded in the ACTD PE 0603750D8Z in FY 2008 and there have not been any ACTD new starts since 2006. All remaining ACTDs will be funded through the JCTD program until completion. In FY 2008 there was one Congressional adjustment in FY 2008, the Power Dozer project. Funding was added to the ACTD for the project in the FY 2008 appropriation and remains the only funding resident in this PE.

UNCLASSIFIED

R-1 Line Item #48

Page 1 of 7

UNCLASSIFIED

Exhibit R-2, PB 2010 Office of Secretary Of Defense RDT&E Budget Item Justification			DATE: May 2009	
APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE		
0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD)		PE 0603750D8Z Advanced Concept Technology Demonstration (ACTD)		
FY 2009 Output: One Congressional adjustment in FY 2009 was added, the Advanced Emergency Response Integrated Environment (AIRIE).				
B. Program Change Summary (\$ in Millions)				
	FY 2008	FY 2009	FY 2010	FY 2011
Previous President's Budget	1.589	0.000		
Current BES/President's Budget	1.552	1.194		
Total Adjustments	-0.037	1.194		
Congressional Program Reductions				
Congressional Rescissions		-0.006		
Total Congressional Increases		1.200		
Total Reprogrammings				
SBIR/STTR Transfer	-0.034			
Balance attributed to undistributed reductions levied by legislative policies	-0.003			

UNCLASSIFIED

R-1 Line Item #48

Page 2 of 7

UNCLASSIFIED

Exhibit R-2a, PB 2010 Office of Secretary Of Defense RDT&E Project Justification								DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603750D8Z Advanced Concept Technology Demonstration (ACTD)					PROJECT NUMBER P523	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
P523: ACTD	1.552	1.194	0.000						Continuing	Continuing

Note

In FY 2008 all ACTD funding transferred to the JCTD program. This completed the transtion to the JCTD model that began in the FY 2006 President's Budget. The new JCTD Program provides a "cradle to grave" path for transformational joint capabilities. The initial funding lines (program elements (PE)) are outlined in the table below. The PEs in the table (with the exception of the ACTD BA3 PE which will fully transfer to the JCTD BA3 PE in FY 2008) represent the JCTD model. Beginning in FY 2007 all new starts will be JCTD only. Refer to the specific Budget Exhibit for more details on each funding line.

A. Mission Description and Budget Item Justification

The Department of Defense (DoD) initiated the Advanced Concept Technology Demonstration (ACTD) program in 1995 with the purpose of demonstrating new, mature technologies in an operational environment and the goal of getting new technology into the hands of the warfighter as quickly as possible. Early successes included the Predator and Global Hawk unmanned aerial vehicles (UAVs). As of year end FY 2007, DoD has started 160 ACTDs, a total of 57 ACTD/JCTDs were in process, and 22 had been returned to the technology base or terminated. However, no ACTD's have been started since FY 2006 with full transition to the JCTD program in FY 2007. By FY 2010 it is anticipated only three remaining ACTD's will not have completed the Miliatry Utility Assessment (MUA). All funding in the ACTD program officially transferred to the JCTD program element (PE) in FY 2008, however, in 2008 and 2009 one congressional add was placed in the ACTD PE in each year.

The ACTD program demonstrated tremendous success in meeting urgent warfighter needs with 65 ACTDs contributing products that are/were employed in Operation Iraqi Freedom (OIF) and/or Operation Enduring Freedom (OEF). A non-exhaustive list of ACTDs deploying products to either OIF or OEF includes: Language and Speech Exploitation Resources (LASER), Expendable Unmanned Aerial Vehicle (XUAV), and the Joint Explosive Ordnance Disposal (JEOD) projects.

In FY 2006, the Deputy Undersecretary of Defense for Advanced Systems and Concepts (DUSD(AS&C)) initiated a new business process, building on the successful ACTD program, to support the Department's transformational reform of addressing future threats from a capabilities focus versus the classical threat based viewpoint. The revised ACTD approach is called the Joint Capability Technology Demonstration (JCTD) program, and is based on proven, positive aspects of the ACTD program with new modifications. The JCTD model specifically addresses congressional concerns and recommendations made by the General Accountability Office (GAO) regarding rapid development and transitioning of Combatant Commander (CoCom) relevant capabilities to the joint warfighter in a more cost effective, timely and efficient model. Aligning closely with the thrust of with the Joint Staff's Joint Integration and Development System (JCIDS), JCTDs take a more balanced project candidate identification approach, shifting the overall program's focus to identifying specific warfighter capabilities needs up front (requirements pull), and then finding technology or concepts to address these needs, while maintaining the historical ACTD approach, where new technology is introduced to the warfighter to solve existing operational shortfalls (technology push). FY 2006 was the first year of a three to five year transition period from the current ACTD to the improved JCTD program.

UNCLASSIFIED

R-1 Line Item #48

Page 3 of 7

UNCLASSIFIED

Exhibit R-2a, PB 2010 Office of Secretary Of Defense RDT&E Project Justification			DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD)		R-1 ITEM NOMENCLATURE PE 0603750D8Z Advanced Concept Technology Demonstration (ACTD)		PROJECT NUMBER P523	
However, in FY 2008 all ACTD funding has transferred to the JCTD program completing the transition more quickly than originally anticipated. Beginning in FY 2007 all new starts were JCTDs.					
B. Accomplishments/Planned Program (\$ in Millions)		FY 2008	FY 2009	FY 2010	FY 2011
Power Dozer Side-Casting Technology Operational/Integration Evaluation The Power Dozer Side Casting Blade Technology is a mechanized earth moving system and is that of continuous loading and unloading of material. The Power Dozer Side Casting Blade Technology will be integrated on armored U.S. Military D8N and D7G dozers. The Power Dozer Side Casting Blade Technology has successfully demonstrated the ability to breach/ clear assault lanes and wide area operations consisting of mines and heavy obstacles (tetrahedrons, hedgehogs, concrete jersey barriers, concrete cubes, concertina wire) on beach and inland approaches in a majority of soil types (from sand to extreme hardpack). The Power Dozer Side Casting Blade system consists of a standard cutting edge with teeth, a steel track laid on edge to form a belt around two vertical axis, two hydraulic motors directly driving two sprocket drives to propel the belt, powered by an auxiliary power unit (APU) mounted on the rear of the dozer. The Power Dozer Side Casting Blade Technology provides power directly to the steel belt actively removing soil from the blade before it accumulates to the point the platform stops its forward motion. The steel belt rotates around two vertical axis that brings soil from the cutting edge to the belt, removing and casting it to the side of the vehicle's (platform) path. (Mines and obstacles are swept aside with the soil.) The speed at which the belt side-casts the material is matched to the host platform's forward speed so material is continuously unloaded. The belt is also reversible. The Power Dozer Side Casting Blade Technology has produced results not previously attained within the mechanical mine clearance arena. In addition to mine and heavy obstacle clearance, the Power Dozer is capable of a 50 percent or greater enhanced productivity in earth moving tasks, protective berms, back filling, road building, side hill cuts, and general windrowing. The Power Dozer has the unique capability, as determined by mission requirements, of being able to be downsized or upsized to match various platforms		1.552	0.000	0.000	

UNCLASSIFIED

R-1 Line Item #48

Page 4 of 7

UNCLASSIFIED

Exhibit R-2a, PB 2010 Office of Secretary Of Defense RDT&E Project Justification			DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD)		R-1 ITEM NOMENCLATURE PE 0603750D8Z Advanced Concept Technology Demonstration (ACTD)			PROJECT NUMBER P523
B. Accomplishments/Planned Program (\$ in Millions)			FY 2008	FY 2009	FY 2010
<p><i>FY 2008 Accomplishments:</i> Performed operational and integration evaluation on this recently demonstrated technology.</p>					
<p>Advanced Emergency Response Integrated Environment (AERIE)</p> <p>The AERIE will integrate force protection and installation infrastructures in the Pentagon, specifically the Integrated Emergency Operations Center (IEOC), enhancing situational awareness (SA) and improving response, addressing Homeland Security issues, Executive Order 133356 and 9/11 Commission recommendations. The methodology used in developing AERIE will allow the exchange of information in any interagency environment. This will significantly enhance the ability to communicate, coordinate, and relay information, while protecting sensitive data. AERIE will be used to provide the Pentagon Force Protection Agency insight into complex day-to-day activities.</p> <p><i>FY 2009 Plans:</i> The AERIE will integrate force protection and installation infrastructures in the Pentagon, specifically the Integrated Emergency Operations Center (IEOC), enhancing situational awareness (SA) and improving response, addressing Homeland Security issues, Executive Order 133356 and 9/11 Commission recommendations. The methodology used in developing AERIE will allow the exchange of information in any interagency environment. This will significantly enhance the ability to communicate, coordinate, and relay information, while protecting sensitive data. AERIE will be used to provide the Pentagon Force Protection Agency insight into complex day-to-day activities.</p>			0.000	1.194	0.000

UNCLASSIFIED

R-1 Line Item #48

Page 5 of 7

UNCLASSIFIED

Exhibit R-2a, PB 2010 Office of Secretary Of Defense RDT&E Project Justification								DATE: May 2009			
APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603750D8Z Advanced Concept Technology Demonstration (ACTD)					PROJECT NUMBER P523		
C. Other Program Funding Summary (\$ in Millions)											
	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost	
PE 0603648D8Z/Joint Capability Technology Demonstration (JCTD)	202.976	207.096	198.352						Continuing	Continuing	
PE 0604648D8Z/Joint Capability Technology Demonstration (JCTD) Transition	2.866	13.487	18.577						Continuing	Continuing	
D. Acquisition Strategy											
<p>The strategy for ACTDs has always been to focus on developing a transition path into a program of record or to establish a new program for those projects that show significant military utility in the demonstration phase. Promising ongoing ACTDs may receive transition funding from the JCTD Transition arm as the ACTD program completes. All ACTD funding will transfer to the JCTD program element in FY 2008. Beginning in FY 2007 all new starts were JCTD only. Program metrics:</p> <ul style="list-style-type: none">- Capability Based: Greater CoCom influence looking at nearer term joint/coalition needs- Provide Spiral Technologies - 25 percent will provide an operationally relevant product demonstration within 24 months of ID signature.- Agile Demonstration - 75 percent complete final demonstration within three years of ID signature.- OSD provide significantly more funding (often greater than 30 percent). In some exceptional cases a majority of project funding, especially during the first two years.- JCTDs not necessarily tied to an exercise. Greater flexibility to establish military utility via operational "real-world" demonstration or specifically designed test/venue.- 80 percent of JCTDs transition at least 50 percent of their products to sustainment.											
E. Performance Metrics											
FY2010											
Strategic Goals Supported: Project Selection; Ability to spiral technologies; Adequately resourced projects; Complete a final demonstration; Number of successful capabilities transitioned.											
Planned Performance Improvement / Requirement Goal: CoCom Capability; Spiral within 24 mos; Fund more than 30 percent; Demo within 3 years; Transition to Program of Record.											
Planned Performance Metric / Methods of Measurement: 100; 25; 100; 75; 80 percent.											

UNCLASSIFIED

R-1 Line Item #48

Page 6 of 7

UNCLASSIFIED

Exhibit R-2a, PB 2010 Office of Secretary Of Defense RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603750D8Z Advanced Concept Technology Demonstration (ACTD)	PROJECT NUMBER P523
<p>The majority of funding from this Program Element is forwarded to the Services/Defense Agencies that execute the individual ACTD projects. DUSD(AS&C) maintains and provides overall programmatic oversight for the ACTD program, to include the individual ACTD projects. The JCTD/ACTD performance metrics center on how fast relevant joint and/or transformational technologies can be demonstrated and provided to the joint warfighter. These metrics are driven by the overall business process which includes six parts: (1) selection focus; (2) ability to spin-off spiral technologies; (3) time necessary to complete a final demonstration; (4) adequately resourced projects with appropriate oversight; (5) capability to complete an independent assessment of the technology; and (6) the number of successful capabilities that are actually transitioned to the warfighter. The table below defines these metrics and helps compare/contrast the current ACTD program with the new JCTD business process model.</p> <p>A comparison of ACTD and JCTD metrics are:</p> <ol style="list-style-type: none"> 1) Project Selection Focus <ol style="list-style-type: none"> a. ACTD - Threat based: shared military service and CoCom influence. b. JCTD - Capability Based: Greater CoCom influence looking at nearer term joint/coalition needs. 2) Spiral Technologies: <ol style="list-style-type: none"> a. ACTD - No metric b. JCTD - 25 percent will provide an operationally relevant product demonstration within 24 months of ID signature. 3) Final Demonstration Completed. <ol style="list-style-type: none"> a. ACTD - 3 to 4 years after initiation. b. JCTD - 75 percent of projects complete final demonstration within three years of ID signature. 4) Shared Funding and Viability of resources: <ol style="list-style-type: none"> a. ACTD - OSD provides no more than 30 percent of the budgeted resources. Funding provided form many different program elements. b. JCTD - OSD provides significantly more funding, greater than 30 percent in some cases a majority of projected funding, especially in the first two years. 5) Military Utility Assessment (MUA): <ol style="list-style-type: none"> a. ACTD - MUA traditionally tied to a specific planned exercise for evaluation. b. JCTD - JCTDs not necessarily tied to an exercise. Greater flexibility to establish military utility via operational "real-world" demonstration or specifically designed test/venue. 6) Transition of Technology: <ol style="list-style-type: none"> a. ACTD - 70 percent of ACTDs transition at lease one product to sustainment. b. JCTD - 80 percent of JCTDs transition at least 50 percent of their products to sustainment. 		

UNCLASSIFIED

R-1 Line Item #48

Page 7 of 7